Infection Prevention and Control Activity

ANNUAL REPORT 2015

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ANNUAL REPORT FOR THE PERIOD JANUARY - DECEMBER 2015

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This report chronicles the 2015 achievements the Infection Prevention and Control Activity in Liberia, a project funded by the Office of Foreign Disaster Assistance (OFDA) and implemented by John Snow, Inc. (JSI). During the reporting period JSI achieved its primary objective of strengthening the culture of Infection, Prevention and Control protocols in Liberia's health system, through the completion of two primary components: 1) training and supportive supervision to healthcare workers on IPC protocols; and 2) distribution of essential IPC supplies to health facilities all over the country. Via these components, JSI continued to pursue its primary objective of strengthening the culture of Infection Prevention and Control (IPC) protocols within Liberia's health system. The activities that make up these components continued to shift to reflect Liberia's transition to a post-emergency context, and to address corresponding challenges in maintaining adherence to IPC protocols and availability of IPC supplies.

JSI's geographic scope on the IPC Activity is vast. The training and supervision (TS) component covers all functional facilities in the counties of Bomi, Cape Mount, Gbarpolu, Grand Kru, Rivercess, Rivergee, and Sinoe, as well as 26 private facilities in Montserrado. The supply distribution component has grown to cover over 95 percent of functional public and private facilities across all 15 counties of Liberia. The IPC infrastructure improvements reach 45 health facilities across the aforementioned TS-focus counties.

This annual report opens with a profile of JSI's role in the Ebola response in 2015, followed by a chronological summary of the corresponding evolution of project activities throughout each of the four quarters of 2015. This is followed by more detailed analysis of the achievements and challenges encountered under each component, as well as a look ahead at the challenges inherent in protecting the strides made by this project in building MOH and CHT capacity to institutionalize IPC measures in the health system.

EBOLA IN LIBERIA, 2015 PROFILE

As the IPCA team was scaling up its two major components at the start of the year, it did so on a note of cautious optimism. The number of suspected and confirmed cases in Liberia had markedly declined in December. Cumulatively, as of December 31, 2014 8,115 cases had been reported nationwide with 3,471 deaths (43 percent fatality rate.) As of January 2015, there were active cases in only five of the fifteen counties – Bong, Cape Mount, Margibi, Montserrado and Sinoe, with all other counties having observed at least 21 days without an active case.

In Montserrado, there was a modest resurgence in January, with healthcare workers among those infected. JSI's still-evolving IPC supportive supervision strategy was refined to meet the emerging needs. JSI master trainers focused on reinforcement of practical triage procedures, and committed to intensive supervision rounds consisting of 3-5 consecutive days per round. Following the rounds, trainers assessed facility knowledge, practices, available stock on hand and overall readiness to deliver independent care. As part of the same emergency response, in February JSI coordinated rapid IPC supply quantification and within a few days had distributed to 66 priority Montserrado facilities.

Between February and June, there was only a single confirmed Ebola case recorded in Liberia, leading to the much celebrated 'Ebola Free' distinction from the WHO upon reaching 42 consecutive days without a case on May 9, 2015. However, there have since been two notable resurgences, in July and November. JSI has played a major role in responding to each cluster of new cases, and has been instrumental in limiting their impact:

Nedowein Cluster (Margibi and Montserrado). The IPC Activity was among the first responders mobilizing to contain the cluster centered in Nedowein District in Margibi. JSI's master trainers participated in IPC assessments of health facilities proximal to where cases had been confirmed as part of a 'ring strategy' coordinated by the IPC task force. JSI also conducted an emergency IPC supply distribution to all high-risk facilities in the area. When one case originating in the cluster traveled into the densely settled Paynesville section of Monrovia, JSI once again participated in an intensive IPC audit of over 70 health facilities that could have been accessed by high-risk contacts and conducted follow up actions accordingly with our Montserrado

partner facilities. The cluster was successfully contained at seven cases, and Liberia was once again declared Ebola free on September 3.

Duport Rd. Cluster (Montserrado) When three new cases were recorded in Montserrado in November, the IPC task force immediately developed a 'ring' response that created a 3-kilometer radius around Duport Road Health Center and JFK Medical Center, where the confirmed cases had sought care. JSI delivered emergency IPC supplies to all 66 facilities included in the ring response within the first three days of the emergency. In addition, JSI master trainers delivered daily mentoring and supervision to seven of the high-risk facilities within the ring over the first two weeks of the response. JSI also participated in focus group discussions with healthcare workers included in the response, to explore ongoing lapses in adherence to IPC protocols. The cluster was successfully contained at 3 cases.

The success of the responses to each cluster required a high level of coordination among international NGOs and the MOH, as well as a considerable investment of resources. Looking ahead, much of the emergency response funding mechanisms are coming to a close. The Liberian Ministry of Health's ability to maintain a modicum of sustainable healthcare worker adherence to IPC protocols and ensure the availability of IPC supplies in facilities is likely to be tested in the months ahead by additional re-emergent EVD clusters.

NARRATIVE SUMMARY OF 2015 ACHIEVEMENTS, BY QUARTER

January – March 2015:

- **Trained a total of 1,149 health care workers from 125 health facilities across six counties.**
- **Conducted 1st and 2nd round distributions (442 and 455 facilities reached)**

Foundational workshops: Before IPCA activities began in earnest, the project management team called together the County Health Officers and County Health Development Directors from each county. This workshop served as an introduction to the project's scope and objectives, to inform them of the upcoming activities in each county, and solicit feedback on the best approach to strengthening IPC practices and ensure availability of supplies across the country. By this time, the CHTs were familiar with the *Keep Safe, Keep Serving* package of IPC materials that had been accepted by the MOH to be used in all public and private health facilities nationwide. In January JSI also organized a formative training session for newly hired logistics specialists, together with county pharmacists and county depot managers in preparation for the first round of IPC supply distribution, and to familiarize participants with the data collection processes.

Coordinating the rollout out KSKS Training & Supervision: By the start of 2015, many healthcare workers across JSI's designated TS focus counties had received at least an initial round of training on the KSKS curriculum.[1] Coordinating efforts with other implementing partners was a task of paramount importance from the start, to ensure efforts were complemented rather than duplicated. In counties where KSKS had already been implemented, JSI's follow up training was preceded by a round of IPC supportive supervision to assess the degree of knowledge of and adherence to the main recommended IPC practices. In all counties, this exercise revealed knowledge gaps, including health workers who had not been trained at all, and consistently low compliance with the most critical practices, which prompted JSI to swiftly develop a comprehensive

[1] Grand Kru, Rivergee and Gbarpolu HCWs were trained by other projects in late 2014, including some by JSI's Rebuilding Basic Health Services Project. Rivercess, Bomi and Cape Mount were initially trained by a combination of IPCA and other partners, including Medical Teams International and Last Mile Health. In Sinoe, JSI provided the first round of KSKS training. In Montserrado County, JSI covered its own mandate of 26 facilities and also provided assistance to MTI by conducting training in 49 additional facilities under their mandate.

refresher training schedule. All training activities included practical demonstrations and distribution of educational material for health workers, including posters, job aids, standard operating procedures and a copy of the IPC reference manual used during the training sessions. JSI also established its model of monthly supportive supervision across all eight TS focus counties, enabling the team to identify trends and allocate resources to poorer performing counties and facilities for appropriate corrective actions.

Launching IPC Supply Distribution: Following initial training and deployment to the counties, JSI logisticians conducted inventory of existing IPC supplies available at each county depot and worked with county pharmacists to prepare for the first round of distribution – selecting distribution teams, indentifying routes, and assessing vehicle availability. JSI depended on the World Food Programme (WFP) to transport IPC supplies to the county level and provide storage units for them. JSI coordinated with WFP to mitigate the effects of delays in that crucial component, and was able to conduct the first facility distribution beginning in early February.

April - June 2015:

- **Trained 475 health care workers from 40 health facilities across six counties.**
- **Conducted 3rd and 4th round distributions (690 and 684 facilities reached)**

In the second quarter of 2015, IPCA greatly expanded the reach of the distribution component nationwide, and completed KSKS training for the remaining portion of HCWs in the eight TS focus counties that had not yet been reached. The IPC infrastructure component of the project began in earnest, with sites and contractors selected for 10 incinerators. This rapid expansion of project activities was achieved in an increasingly challenging physical environment, as the onset of rainy season in May hindered transportation in many parts of the country. The quarter closed with notification from OFDA that the IPCA extension was approved for an additional six months, through the end of 2015.

Over the course of the quarter JSI's master trainers made the transition from implementing training to providing supportive supervision, committing to a goal of at least one monthly visit to each facility within the TS focus counties. Though at first the supervision visits were limited to one day per facility, JSI soon expanded the approach to include multi-day intensive visits, to allow for more comprehensive follow up coaching to address IPC gaps. JSI adapted the tools used in supervision to reflect changing needs, in particular making improvements to the MOH-designed Facility Audit Tool. JSI also expanded its mentorship of CHT-assigned IPC focal persons, holding workshops to focus their efforts in Bomi, Sinoe and Cape Mount over the course of the quarter.

On the supply distribution side, JSI's reach increased considerably over the quarter with the addition of nearly all Montserrado private and public facilities to the distribution schedule, as well as the addition of all public hospitals nationwide. Though JSI logisticians continued to collect data from all facilities on consumption of IPC supplies, the quality of the data compiled by facility staff was questionable. JSI thus developed a new tool to be used to improve the data quality – the Routine Data Collection Tool (RDCT). JSI logisticians first employed the use of the RDCT to collect data from a sample of representative facilities during the June distribution.

July - September 2015:

- **Conducted Supervision at 188 facilities in July, 207 in August and 35 in September**
- **Conducted 5th round distribution (675 facilities reached)**

With the onset of the IPCA extension period July 1, additional activities were added to the scope of work. The IPCA scope evolved to reflect Liberia's transition to a post-emergency context, and to address corresponding challenges in maintaining adherence to IPC protocols. In the extension period, JSI's efforts to institutionalize IPC measures became increasingly focused towards building ownership at central, county and facility levels. Key shifts in programming included the following:

- The training and supervision component transitioned from its basis on the *Keep Safe Keep Serving(KSKS)*training curriculum to the new *Safe and Quality Service(SQS)* training curriculum;
- JSI's support for IPC and WASH infrastructure components at priority health facilities was greatly expanded beyond incinerators to also include water tank installations and temporary triage and holding units; and
- JSI introduced a performance-based incentive program, rewarding health facilities that showed sustained improvements in key IPC indicators with packages of expendable supplies and tools for making small-scale facility improvements.

Over the course of the quarter the supervision component reached its high-water mark of 207 facilities in August, but then scaled down rapidly to make way for the SQS training implementation. By the end of September, JSI training staff had successfully completed Training of Trainer workshops in 7 counties, held an SQS data-entry orientation workshop with all M&E staff, and had formed partnerships with five other implementing organizations to implement SQS across the same counties in which the KSKS training had focused on.[2] Also in September, JSI compiled the results from its performance-based incentive program in training and supervision focus counties, and made preparations to reward 55 facilities accordingly.

The distribution component continued, completing the 5th round of distribution in August. As an indicative signal that a post-emergency phase had been reached, JSI and other supply chain stakeholders revised the IPC packing list downwards to reduce the amount of bulky enhanced PPE going out to facilities, as it was no longer being used regularly. Also, with the 2nd round of consumption data collected in August through use of the RDCT, JSI prepared a presentation on average monthly consumption for supply chain stakeholders.

With the first phase infrastructure (10 incinerators) nearing completion, JSI hired eight contractors to begin work on the second phase in August. Eight contractors were hired to build 33 incinerators, 13 triage and holding units, and 20 water tank installations across 7 counties. By the end of the quarter work was underway at worksites across each county.

October - December 2015:

- **Contributed to SQS training in 8 counties and directly trained 2,091 non-clinical HCWs in 5 counties**
- **Conducted 6th and 7th round distribution (693 and 724 facilities reached)**

JSI's role in implementing the non-clinical stream of the SQS training package picked up in early October. The non-clinical stream was a natural fit for IPCA trainers as it largely focused on the same IPC principles as KSKS, but with an additional component covering psychosocial support. JSI's target population for SQS training was 1,754 non-clinicians across five counties, which was well exceeded.

During this final quarter of IPC supply distribution, JSI's focus was on not only ensuring the stock on hand at all targeted facilities was fully replenished in a timely manner, but also that our County Health Team partners were left at the end of the project with an accurate picture of the stock on hand at both facility and County (Mobile Storage Unit) levels. At 95 percent of all functional facilities served, the final round of distribution was the highest total reached by the project. JSI also continued to collect consumption data, and had three months of average monthly consumption data to report on by the end of the quarter. In December, the USAID DELIVER Project hosted a workshop for IPC supply chain stakeholders on the quantification of IPC supplies going forward, incorporating the consumption data generated by IPC Activity. At the workshop, the IPCA consumption data was reviewed, adjusted for compliance rates and analyzed to identify trends for future supply forecasting needs over the coming 18 months.

[2] JSI partnered on SQS with International Organization for Migration in Bomi, Gbarpolu and Cape Mount, Partners in Health in Grand Kru and Rivercess, American Refugee Committee in Rivergee, and Medical Teams International in Sinoe.

By quarter's end, nearly all technical activities were completed and field staff recalled. Only JSI's infrastructure improvements were still ongoing heading into 2016, with contractors still conducting finishing work at sites in two counties.

STRATEGY ELEMENT I – IMPROVING IPC PRACTICES THROUGH TRAINING AT HEALTH FACILITIES

IPC training and supervision activities have been implemented by a team consisting of 15 roving master trainers and seven county-based training and supervision specialists. They were supported by a regional-focused TS specialist and received overall managerial and technical oversight from a Monrovia-based training and supervision advisor. Master Trainers' tasks included: conducting initial and mop-up training and supervision visits, mentoring health workers, collecting monitoring data, and documenting their activities. The County-based TS specialists were responsible for coordinating Master Trainer activities in the counties, liaising with the county health teams (CHTs), building the capacity of CHT members, and ensuring that IPC structures are in place and functioning well in facilities as well as within the CHT.

'Keep Safe, Keep Serving' is a package of IPC materials reviewed and accepted by the MOH in 2014 in the context of emergency Ebola response, to be used in all public and private health facilities nationwide. The base components of KSKS included: (1) training curricula for each level of the health system and for both clinical and facility support staff, (2) PPE and water and sanitation minimum requirements at each facility and, (3) follow-up supportive supervision, with an eye towards ensuring basic health service provision could be restored and delivered safely. As IPCA's training component got underway, KSKS was already established, and being implemented by several partners. JSI received its assigned TS focus counties of Bomi, Gbarpolu, Cape Mount, Grand Kru, Rivercess, Rivergee and Sinoe with the understanding that another OFDA-funded project implemented by Jhpiego would cover other counties. Responsibility for the nearly 300 facilities in Montserrado was divided across many organizations through coordination of the Monsterrado county IPC committee. JSI took on 26 Montserrado private facilities that didn't otherwise have support.

To make the sustained supportive supervision more relevant and up to date with the gaps identified and the emerging needs, JSI adapted the MOH-designed Facility Audit Tool, especially in the areas of clinical triage. The updated version helped to standardize findings during supervision visits and allowed for comparisons across facilities and counties. JSI training and supervision staff worked with CHTS to analyze and discuss county-specific results and action items.

As JSI trainers transitioned from training to follow up supervision, they set a goal of monthly facility visits. At the end of each round of supervision, the team members assessed facility knowledge, practices, and overall readiness to deliver care using the revised Keep Safe, Keep Serving Audit Tool as well as the Minimum Standards Tool. Given the widespread lack of sturdy waste management solutions available at facilities, the mentorship was practically focused on maximizing the use of available resources. The audit tool helps to standardize the supervision visits, and make findings easily comparable across facilities, as well as easily shareable with other partners. It also provides the facility staff with tangible, actionable follow up tasks

JSI has endeavored to create the basis for sustainability of IPC activities with tailored support provided to the **IPC focal persons (IPC-FPs)** at facility level, through facilitation of group discussions on sharing lessons learned and practical solutions for improving IPC practices by health care workers. These forums also helped focal points to better understand their roles and functions at the facilities in term of IPC practices; and to devise mechanisms to improve compliance. JSI extended the emphasis on IPC focal points to county level as well, through the establishment of CHT-assigned focal points and steering committees. Sustained support for the IPC focal point role at both county and facility level is a crucial pillar of the national IPC policy.

The **Performance-based Incentive (PBI)** program provided a complementary reinforcement of the supervision principles. It was designed as a way to further motivate participating healthcare workers, improve service delivery, and increase demand. Facilities across the TS focus counties were assessed based on key IPC indicators including PPE utilization, environmental cleaning, disinfection, and waste management. The PBI program structure and indicators were shared with facility administrators and county health officers prior to PBI roll-out. The top performing facilities were given packages of supplies for use in the facilities, and chose between packages of expendable Items (e.g., bedding, soap, torches, batteries, fans, mattresses) or facility Improvement Items (e.g., zinc sheets and hardware, paint, filing cabinets, grass cutters). Two months after the introduction of the incentives, 56 facilities qualified and received their packages. Due to the transition from KSKS to SQS and corresponding changes in IPC best practices, the program was not continued in the final quarter.

By September 2015, the follow-on national training package to KSKS was approved by the MOH: the **Safe and Quality Service (SQS)** Training package. The principles of the SQS were intended to replace those of the KSKS, so JSI phased out its KSKS-based supervision accordingly by the end of September. The SQS training package was developed under the leadership of the World Health Organization and the Ministry of Health. Once the package was complete, intensive discussions took place among donors, implementing partners and other stakeholders on how best to roll it out and how it would be funded. The WHO developed an operational plan that consisted of 'lead' SQS implementing organizations in each county in partnership with County Health teams. The training was designed with two streams – four days of offsite training for clinical HCWs and two days for non-clinical HCWs. In discussions with other partners, JSI determined that rather than serve as a 'lead' organization in any one county, it would be better served to contribute as a substantial supporting organization across the same eight TS focus counties, and to focus upon training the non-clinical, non-hospital healthcare workers. The non-clinical stream was a natural fit for IPCA trainers as it is largely focused on many of the same IPC principles as KSKS, with an additional component covering psychosocial support. Across the eight counties, JSI engaged in partnerships with five different implementing partners. The nature of each partnership was different, depending on the resources available to each implementing partner.[3]

Across JSI's SQS focus counties, JSI master trainers tailored the training content to the education levels of their audience, translating material into Liberian English and other dialects as needed, and making adjustments for low-literacy and low-numeracy participants. The SQS curriculum itself was not ideally suited for a non-clinical audience. Many cleaners, registrars and other non-clinical health workers had low baseline knowledge on best practices surrounding disinfection, waste management, and hand hygiene prior to the intervention by SQS. One major recommendation that JSI shared with the SQS implementing community was that training content must be pre-tested on HCWs with low literacy and numeracy skills before being finalized, as considerable time was spent by the JSI trainers practicalizing the content and making it relatable to the audiences.

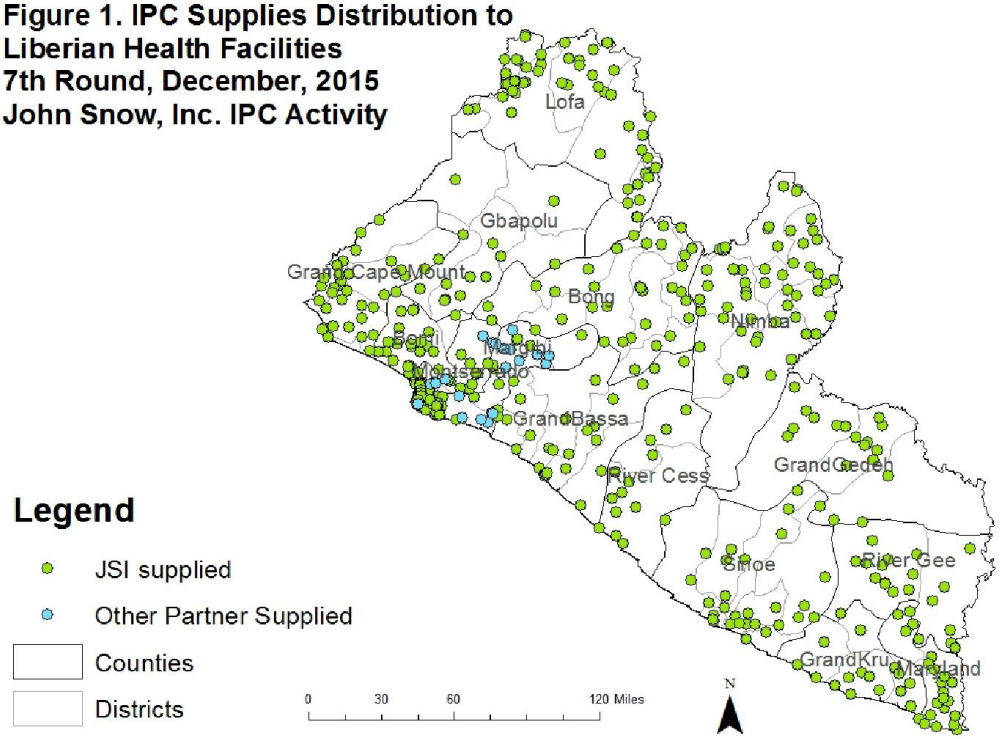
STRATEGY ELEMENT II: IPC SUPPLY DISTRIBUTION

The foundation for JSI's supply distribution component was set in late 2014, as stakeholders including JSI, the WHO and MOH developed the standard packing list and quantification of IPC supplies for the clinic, health center and hospital levels. In the emergency context of the time, and in the absence of consumption data, the distribution strategy was set as a push system to ensure all facilities were well supplied. In order to provide the breadth of support required to complete last mile distribution in all 15 counties of Liberia, JSI committed a logistician to lead distribution in each county. Over the course of leading seven rounds of distribution, each logistician was responsible for taking regular inventory of IPC supplies at the county and facility level before

[3] In Bomi, Gbarpolu and Cape Mt., IOM paid for all SQS training and led sessions, and JSI participated. JSI does not claim the SQS trainees in these 3 counties in our reporting figures.

and after each distribution, facilitating the allocation and movement of distribution teams, and generally allocating resources necessary to reach even the most rural facilities. The logisticians were supported by a Supply Chain Technical Advisor based in Monrovia, and a roving senior logistics specialist. The Montserrado-based logistician was supported with additional staff at the central warehouse. All field-based logisticians worked closely hand in hand with CHT pharmacists, county depot staff, drivers and other GOL employees.

Figure 1. IPC Supplies Distribution to Liberian Health Facilities
7th Round, December, 2015
John Snow, Inc. IPC Activity



The importance of coordination with other supply chain stakeholders was paramount, as the responsibility for procurement and distribution to county level fell to the World Food Programme (WFP), and WHO logisticians also provided substantial technical oversight. The WFP set up two types of de-centralized storage facilities – regional level forward logistics bases (FLBs) in Grand Gedeh, Maryland, Bong, Grand Bassa, and Lofa, and county-level mobile storage units (tents) in Sinoe, Grand Kru, Rivergee, Nimba, Rivercess, Margibi, Gbarpolu, Bomi and Cape Mount. Monsterrado's considerable supply needs were met by the central warehouse at the SKD logistics hub. JSI also maintained its own storage space at SKD to perform 'kitting' – preparing bundles of IPC supplies for each facility. JSI focused on 'last mile' distribution – defined as transport of supplies from county-level facilities to the health facilities.

For each round of distribution, JSI corresponded closely with WFP to convey the proposed schedule for last mile distribution, to ensure the availability of supplies at the various FLBs and MSUs. This was a challenge in the early-going, as WFP experienced costly delays in getting the MSUs and FLBs online and fully stocked. Coordination with other implementing partners was also crucial, as some partners maintained ad-hoc distribution schedules with facilities they supported. In particular JSI liaised with Save the Children – who continued to supply15 facilities in Montserrado and all MOH facilities in Margibi County throughout 2015.

Whenever possible, and upon request from CHTs, JSI took advantage of its broad logistical reach to equip other important outposts with IPC supplies and even other essential commodities. For example, JSI logisticians actively participated in distribution of IPC material to schools in Grand Kru County, paracetamol to facilities in Montserrado County, IPC supplies to border posts in Bong, Cape Mount and Grand Gedeh counties, and IPC

kits for households in Lofa County. JSI also pre-positioned polio vaccines on behalf of CHTs during the national immunization drive in November.

Table 1: Progression of Facilities Served, 7 Rounds of Distribution

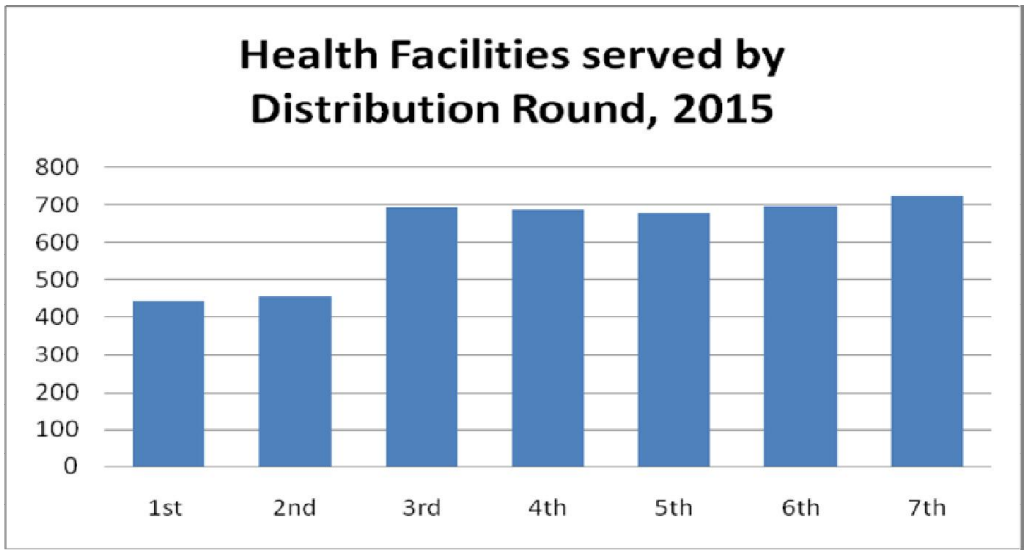


Table 1 above shows the progressive increase in breadth of JSI's distribution reach across each round. Each county presented its own set of logistical challenges. To ensure even the hardest to reach facilities were served, JSI logisticians employed a wide-variety of creative and locally-sourced resources. Where the roads were impassable for trucks, motorcyclists were hired to pile supplies high on the backs of their bikes. When the roads became impassable even to motorcycles, 'human conveyers' were hired to carry supplies on foot. Where rain-swollen rivers made roads completely impassable even on foot, supplies were sealed in waterproof bags and sent across on canoes. As the road network deteriorated further with the onset of rainy season, several of the least accessible facilities were pre-positioned with multiple-months quantity of supplies in one visit. With JSI guidance, many facilities found creative ways to designate additional storage space for IPC commodities, both onsite and through space donated by community leaders.

Each round proved to be a significant learning experience, providing a multitude of actionable feedback to continuously improve the efficiency and cost effectiveness of the process. In September, after five rounds of distribution, JSI convened all 15 county-based logisticians in Monrovia for a review workshop to consolidate lessons learned to date and develop an improved workplan for the remainder of the project. A number of strategies were employed from that point onwards, the most significant being the deployment of JSI administrative staff across the country to provide additional financial oversight and support to logisticians. Round by round, JSI's teams became more adept at minimizing the use of expensive rental cars and limiting the number of days needed to complete distribution in each county, greatly improving cost efficiency.

Throughout the year, JSI logisticians maintained their commitment to using the MOH-standard logistics management information system tool - stock balance reporting and requisition (SBRR) forms - from all health facilities. However, the quality of data generated from the SBRR was questionable, making it difficult to make reliable assumptions of the consumption rates of IPC supplies at different tiers of health facilities. In consideration of the urgent need for reliable IPC consumption data, JSI developed alternative means of data collection. In May and June, JSI developed a simple rapid data collection tool (RDCT). The form was filled by JSI's own logisticians at the point of distribution at facility level, and calculated consumption based on physical stock on hand and quantity received that day from JSI, while also accounting for any days of stock out. The RDCT was utilized to assess consumption rate for the most critical disposable IPC commodities, rather than

the full packing list. The RDCT was employed through the final four rounds of distribution at a sample size of 70 health facilities, including facilities in all 15 counties, and with each tier of the health system (hospital, health center and clinic) represented. By project's end, JSI had collected three months of data to inform assumptions about average monthly consumption rates.

In addition to consumption rates, JSI logisticians also capitalized on their relatively frequent access to health facilities to collect key logistical datasets. By the end of 2015, JSI had collected data from the majority of facilities nationwide on the distance of each facility from the county depot, as well as the amount of available storage space at each facility (in cubic meters). The logistical datasets will be useful for CHT planning efforts, and have also been shared with the USAID DELIVER project to aid in data modeling for the national efforts to roll out the Supply Chain Master Plan.

Even tools as simple as the health facility lists JSI compiled and maintained throughout the course of the year has filled sorely felt gaps for CHTs and implementing partners alike. This was especially the case in Montserrado, where the multitude of private facilities frequently close, re-open, change names and/or change locations. The Montserrado facility list will continue to aid the Montserrado CHT and implementing partners alike in aiding implementation in the county.

STRATEGY ELEMENT III: BUILDING MOH IPC OVERSIGHT CAPACITY

As JSI's county-based teams were embedded within the County Health Team structures, all day-to day activities inherently contained a strong element of knowledge transfer and capacity building. CHT members were highly active participants in IPC supportive supervision visits and supply distribution alike. CHT members have also actively participated in workshops designed to achieve two main objectives: 1) to build capacity at facility and county levels within the context of IPC, and 2) to strengthen the network of IPC focal persons in JSI-supported counties. Additionally, IPCA staff helped CHTs identify IPC Focal Points at CHT level and form county level IPC Steering Committees; these committees met regularly to discuss and monitor timely IPC issues, and develop informed responses. At the central policy level, IPCA has also done its part to contribute to the codification of IPC protocols within the Liberian health system, through its influential role on the IPC task force and steering committee.

Throughout 2015, IPCA remained an instrumental member of the national IPC task force. The task force, chaired by the Ministry of Health with technical support from the World Health Organization, is a key forum for implementing partners to share experiences, develop guidelines, and coordinate efforts. It also has provided a crucial incident command framework for IPC response efforts when clusters of Ebola cases have re-emerged. Through the task force, JSI has participated in the production of the resources to aid in supportive supervision of facilities, including the aforementioned minimum standards tool and the facility audit tool. At a higher level, JSI has also been an active member of the newly created IPC Steering Committee, a body chaired by MOH and comprised of a few key institutions as participating members. Through the steering committee, JSI contributed heavily to a National IPC Policy in June and July 2015. The national policy codifies many of the strong practices JSI county-based teams had already been reinforcing through the strengthening of both county and facility-level IPC committees. The policy calls for sustained support for IPC committees at county and facility level, bolstering the efforts of IPCA to establish and nurture their development.

Next steps for Training and Supervision: The transition from the Keep Safe, Keep Serving package to the Safe and Quality Service package is also an important step in the transition from emergency-focused IPC programming to a more general and routine focus on HCW capacity building. Though IPC is still a major focus in the SQS package, it places the protocols in the context of routine service delivery. Through SQS training, both clinical and non-clinical HCWs are encouraged to adapt previously learned emergency IPC measures to their current day-to-day work, through concepts such as risk-based PPE usage. Healthcare workers trained by JSI on the SQS package have emerged equipped with a more sustainable mentality for maintaining their safety

over the long term, through the adoption of risk-based PPE-usage. Along with other implementers, JSI strongly emphasized the importance of follow up refresher training, supervision and mentorship to capitalize on knowledge gained through SQS. As of the end of 2015, the Ministry of Health is leading the development of follow-up mentorship activities, with the support of implementing partners. The planned framework will center on clinical and quality improvement standards. This package will be structured in such a way that mentorship activities will be driven primarily by health facility staff and county health teams; this approach will promote sustainability, and will result in tailored capacity building and health system strengthening activities.

Next steps for Supply Distribution: At the national level, JSI has coordinated closely with an EVD Commodity transition group, made up of key supply chain stakeholders, including the MOH Supply Chain Management Unit (SCMU). The working group has compartmentalized functional areas containing key actions for integrating IPC supplies into the national supply chain. Through this group, the IPC supply packing list was revised in October 2015, reflecting feedback from facilities regarding their slower consumption of bulky enhanced PPE. In particular IPCA has coordinated closely with the USAID DELIVER project, which is working with the SCMU to build capacity on quantification, forecasting and procurement of IPC supplies as well as strengthening the capacity of SCMU and NDS to incorporate a select set of IPC commodities into the routine public health supply chain. The consumption data collected through IPCA are a crucial contribution to these efforts to produce a national forecast and supply plan for routine use of IPC commodities going forward, as well as the calculations making up the projected needs of commodities to be used as a contingency stock in the event of future EVD cases. The consumption data has provided a strong foundation for determining ideal minimum and maximum stock levels for IPC commodities at facility level, and the MOH will use the information to solicit for additional funding as needed to procure needed supplies in the coming months.

At the county level, JSI has increasingly integrated CHTs into both warehouse management and facility-level distribution over the latter half of 2015. The final distribution of supplies in December was led by each county pharmacist with mentorship from JSI's county-based logisticians. At the outset of the final round, JSI reached out to County pharmacists and provided guidelines for management of the county MSUs. JSI logisticians held official handover ceremonies for each MSU, and also used the opportunity to hand over hard copies of IPC supply waybills, SBRR and electronic stock on hand reports. To add another capacity building element to the final distribution, the process was combined with a physical inventory and data collection at each facility. The inventory data is intended to ensure the CHTs and in particular the pharmacists have a good idea of where their stock on hand stands at the point of management transfer from JSI, and plan accordingly. As much as possible, the CHT/JSI distribution teams supplied facilities with the full IPC packing list in the final round. JSI logisticians helped facility OICs to develop and utilize supplemental storage, and OICs were encouraged to accept the full package as to guard against future stock out.

Scale Down Presentations to CHTs: To further prepare County Health Teams to absorb JSI activities and resources and take them further, each JSI field-based staff member made a comprehensive presentation to their CHT partners over the course of the final quarter. Though the presentations were specific to the context of each county, many of the key recommendations are consistent for all CHTs. On October 22 JSI's central office hosted an event to specifically highlight the achievements, challenges and recommendations in Montserrado County. This event was well attended by members of Montserrado CHT including the CHO as well as some key central MOH figures. Each county presentation followed a standardized format to showcase not only achievements but specific methods/strategies and tools utilized, challenges encountered, and key recommendations, with a specific focus on making resources transferable to CHTs.

IPC INFASTRUCTURE IMPROVEMENTS

The IPC infrastructure component grew significantly over the course of the year, and was the one activity still ongoing as 2015 drew to a close. JSI employed a full time consultant as a roving Infrastructure Supervisor, and as the workload increased, later added two additional roving site monitors. The infrastructure advisors reported directly to the Project Director.

JSI's infrastructure focus consisted of three components all related to improving IPC practices at the facility level: triage and holding units, water tanks, and incinerators. The geographic scope was the same focus counties included in the training & supervision component.[4] Within those counties, the County Health teams led the prioritization and ranking exercise, providing JSI with listing of the highest-need facilities as well as qualitative feedback. JSI's infrastructure supervisor conducted extensive site assessments over the course of July and August to verify site placements, conduct environmental impact analysis, and finalize the listing. JSI hired eight contractors to work across the seven counties after an extensive competitive bidding process in August. Some sites were revised in September, to avoid duplication with other donor-funded infrastructure projects.

Triage and Holding Units: JSI-hired contractors have installed 13 temporary triage & holding units across six counties. JSI adopted a basic design developed by a sub-working group of the IPC task force, and adapted the bill of quantities to ensure it would be a temporary structure. The design enforces a uni-directional flow of foot traffic, and meets minimum IPC standards by providing a safe temporary holding place for suspect cases while they await referral to a higher-level facility. The CHTs prioritized high-volume clinics and health centers to receive the temporary triage and holding units from JSI.

Water Tanks: JSI delivered 1500-gallon water tanks to 20 health facilities. The contractors installed them on a concrete foundation with roof rainwater catchment systems. All of the facilities chosen had not previously had any source of water for facility use, and no way to model best WASH practices prior to JSI's intervention.

Incinerators: JSI-hired contractors have installed 43 Montford Medical Waste incinerators, as well as ash pits. Each incinerator has been housed within a fenced and covered enclosure for enhanced security and protection from weather. Many of the facilities had incinerators on site already, but had become completely non-functional and had to be replaced. Through a combination of JSI staff and the hired contractors, staff at all recipient facilities have been oriented to the standard operating procedures for the incinerators.

County	IPC Infrastructure		
	Incinerator	Triage Unit	Water Tank
Bomi (6 facilities)	**6**	**0**	**0**
Cape Mount (5 facilities)	**5**	**2**	**2**
Gbarpolu (8 facilities)	**8**	**2**	**6**
Grand Kru (7 facilities)	**7**	**2**	**2**
Rivercess (6 facilities)	**6**	**2**	**2**
Rivergee (8 facilities)	**6**	**2**	**5**
Sinoe (5 facilities)	**5**	**3**	**3**
Total (45 facilities)	**43**	**13**	**20**

The execution at the worksites has proved quite challenging. Challenges were many, and ranged from difficulty obtaining concurrence for design changes from CHTs, to contractors not closely following specified instructions, to poor road conditions hindering access to work sites. By December 31, almost all incinerators, temporary triage & holding units and water tank basement installations were nearing completion, and many needed only to be verified by JSI's infrastructure team. The Continuous hands-on presence at worksites from JSI's roving monitors have been instrumental in ensuring the successful completion. Community engagement has proven a very important element to success, especially in conveying building materials to the least accessible worksites. The beneficiary healthcare workers and CHT members have also contributed heavily to providing oversight of the contractors. The completion of such an extensive infrastructure component signifies a lasting physical legacy of the IPC activity, and is an important contribution to the institutionalization of IPC measures in the health system.

[4] In Montserrado though, space restrictions prevented the installation of incinerators, JSI provided 21 portable waste burners to partner facilities.

MONITORING AND EVALUATION

The IPCA monitoring & evaluation team structure consisted of seven field-based M&E specialists with management and technical oversight from a Monrovia-based M&E Officer. Each field-based officer was closely integrated into both the training and supervision component and supply distribution component, ensuring data was captured fully and accurately. They also worked closely with County Surveillance Officers in support of county epidemic surveillance data collection and reporting, through JSI allocation of resources and technical assistance. The Monrovia-based M&E team managed all incoming data from the counties, including the surveillance weekly reports, training and supervision figures, logistical data from facilities in all 15 counties, and IPC supply consumption data via the SBRR and RDCT. JSI's M&E team also conducted two rounds of county-level data review meetings, at which all project data was shared with CHT supervisors (including all DHOs, health facility staff, and implementing partners).

The number of facilities supervised is substantiated by the compilation and submission of the Facility Audit Tool, signed by both the supervisor and the facility's manager or OIC. Similarly, the number of facilities that received IPC supplies can be verified by the delivery notes and waybills, copies of which are kept at the county depot level. JSI's training database captures training dates and facilities trained, trainee duty stations, and trainee job titles/qualifications. A separate database is used to store supervision results, including responses to audit tool questions.

Through JSI support, county surveillance efforts have experienced a strong resurgence over the course of the project. The effort to reactivate surveillance has been ongoing since June, with reactivation meetings bolstered by monthly support for transport and phone credit to aid in surveillance data collection and reporting. All training and supervision focus counties participated in surveillance activities. During SQS training, JSI M&E specialists were assigned with lead partners in counties to perform the SQS data entry and management.

Table 2: IPCA Project Performance Indicators, Cumulative Achievement

Indicator 1: Number of health care facilities supported by type	
Facility type	**Cumulative achievement**
Hospitals	37
Health Centers	59
Clinics	628
Indicator 2: Number of health care providers trained by sex	
Male	2,552
Female	2,387
Indicator 3: Number and % of health facilities submitting weekly surveillance reports	
Number	159
Percentage	96%